COMMENTARY ON THE OPERA SUPERLUMINAL NEUTRINOS (AUTUMN 2011)

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In spite of the non-local character of quantum physics, the limit c for a transportation of information is yet a firm "taboo" in physics. This explains the great emotion raised by the recent observation of superluminal neutrinos.

But this speed c is far too slow to explain the homogeneity of the *cosmic microwave background* (CMB), with the so-called "horizon problem" of the primordial Big Bang model. For this reason, standard cosmologists managed to save this dubious c-limit by introducing an *ad-hoc* inflation. But it was recently shown [1,2] that a *tachyonic scanning* physics is far more successful for the explanation of a number of various cosmic data, and without any need for both primordial Big Bang and inflation. This idea is connected with the *holophysics* principle stating that local differential equations should be replaced by global, holographic ones. It replaces the mythic Multiverse by a *Grandcosmos*, which directly explains the CMB, giving correctly its temperature in one line of elementary calculation.

Indeed, the CMB is then easily explained as a thermal emission of the Grandcosmos, considered like a "thermal bath" which temperature (common with that of the Hubble Universe) is correctly determined by a simple energy conservation. Note that in the standard cosmology, where the Hubble radius is thought to be variable, neither energy nor holography conservation can be directly applied.

Assuming an identical critical density for both Hubble Universe and Grandcosmos, we arrive at a maximal tachyonic celerity of about $10^{61}c$, which gives at last a simple explanation of the mysterious non-Doppler *coherent cosmic oscillation* (CCO) with a period of nearly 9600.6 s, which has been observed over decades in the Sun and several active galactic nuclei [3-6], and leads to inherent connections between the standard so-called free-parameters, - which are much more direct and precise than the anthropic arguments. It was also shown [1,2] that an elementary c-free analysis produces both the precise CCO period, within the 10^{-4} imprecision of G, and a time constant of 13.7 billion years, which therefore cannot be regarded as the Universe "age" but rather the regeneration time constant of the steady-state model.

It is remarkable that one century ago Henri Poincaré, in his famous "Dernières Pensées", has made this astonishing prediction: *"Since the Universe is unique, differential equations cannot be the basis of cosmology, because it would introduce free-parameters."* Note that he ruled out at once the possibilty of a primordial Big Bang. By contrast, in our flickering model the Universe may be considered as a "rapid" succession of Big Bangs. This *(a)* means theoretical physics needs a rescaling factors like the above factor 10^{61}, and *(b)* explains the present blockage of theoretical physics, imbedded in a single specific celerity.

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Sincerely, F. M. Sanchez and V. A. Kotov, -
Paris and Crimea, 1 December, 2011